

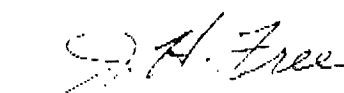
## Columbia Falls Aluminum Company

## Internal Correspondence

DATE: September 19, 1990  
SUBJECT: ARCO REQUEST - PASTE PLANT SCRUBBER  
FROM: J.H. Free  
TO: T. Payne

Per your 9-11-90 memo requesting answers to ARCO's three questions regarding the Paste Plant wet scrubber installation, we are supplying the following comments:

1. Major and auxiliary equipment expenditures were significantly less than originally estimated as a result of reclassifying \$26.2K worth of equipment (original estimate) as steel components in the final "ACTUAL TO DATE" listing, i.e., steel ductwork and platforms originally listed as "equipment" were finally relisted as "steel". The remaining \$21K variance was due to some equipment such as the industrial fan being purchased for less than original estimates, changes in design deleting some equipment such as a recirculating pump, and other auxiliary equipment and a variance in the original estimate versus actual costs.
2. Construction labor costs were significantly greater than originally anticipated as a result of CFAC electrical labor exceeding original estimates and start-up problems. Due to Montana state air quality deadlines, much of the electrical labor was done on overtime (time and a half pay). Start-up problems resulting from hydrocarbon tar deposition on the inside of ductwork and the wet scrubber led to the necessary installation of hot water cleaning equipment and piping. The additional pipe fitter and electrical labor was, of course, not included in the original estimate. Additional labor was required to make corrections as a result of internal environmental problems caused by the scrubber installation. Underestimating the contractor's total installation cost also contributed to the variance.
3. CFAC labor was used to the extent that it was due to factors listed in response number two, i.e., overtime electrical labor, additional pipe fitting labor, additional manifold modification labor and underestimating electrical labor. CFAC labor was used for the manifold duct work corrections since the contractor had already left the plant site after finishing their required contract work. We did originally plan to use CFAC personnel for all electrical and pipe fitting work. The amount of CFAC labor finally required to complete the project was not originally anticipated.

  
John H. Free  
Engineering

## Attachments

cc: A.B. Barkley  
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